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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,479	06/29/2001	Richard Henry Dee	00-113-TAP	5932
7590	01/30/2006		EXAMINER	
Wayne P. Bailey, Storage Technology Corporation One Storage Tek Drive Louisville, CO 80028-4309			CASTRO, ANGEL A	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/894,479	<b>Applicant(s)</b> DEE, RICHARD HENRY	
	<b>Examiner</b> Angel A. Castro	<b>Art Unit</b> 2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-9,17,21-25,33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 8,24,33 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-7, 9,17,21-23, 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

This Office Action is in response to Amendment filed 10/31/05. The Advisory Action of 11/15/05 is withdrawn.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17, 21-25 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Starting in line 3 of claim 17, parts of the claim are missing rendering the claim indefinite.

### ***Election/Restrictions***

3. Claims 8, 24 and 33-34, are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/24/03. The elected Species 1 (figure 8) does not comprise an antiferromagnet as Species 2 (figure 9A).

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, an antiferromagnet and at least one

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permanent magnet must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1, 6, 9, 17, 22, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Coffey et al (U.S. Pat. 5,583,725).

Regarding claim 1 and as far as it is understood of claim 17, Coffey et al discloses an apparatus for reading data (figures 3-4), comprising:

a magnetic tape media contact surface configured to contact a magnetic tape media (column 4, lines 1-2); and

a reduced sensitivity spin valve sensor 30, wherein the reduced sensitivity spin valve sensor senses an applied magnetic field from the magnetic tape media when the magnetic tape media passes by the reduced sensitivity sensor, and wherein the reduced sensitivity spin valve sensor has a sensitivity less than magnetic disk head sensors, and wherein the reduced sensitivity spin valve sensor has a sensitivity that is reduced from a sensitivity of the magnetic disk head spin valve sensor by increasing an effective anisotropy field of a free layer 35, 36 in the reduced sensitivity spin valve sensor (column 3, lines 3-7), and wherein the effective anisotropy field of the reduced sensitivity spin valve sensor is increased by increasing a stiffness of a sensing region of the free layer (it is inherent in the reference that by increasing the anisotropy field of the free layer the stiffness of the free layer is increased).

Regarding claim 6 and as far as it is understood claim 22, Coffey et al discloses that the stiffness of the free layer is increased by using at least one permanent magnet stabilizing element 42, 43 to impart a stiffening magnetic field to the sensing region of the free layer.

Regarding claims 9 and as far as it is understood claim 25, Coffey et al discloses that the stiffness of the free layer is increased by using both an antiferromagnet 41 and at least one

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permanent magnet stabilizing element 42, 43 to impart a stiffening exchange magnetic field to the free layer (see figures 3-4 and column 5, lines 49-56).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coffey et al in view of Tobise et al.

Regarding claims 7 and 23, Coffey et al discloses the apparatus for reading data described above. Coffey et al does not specifically disclose that the at least one permanent magnet stabilizing element is a cobalt-platinum-chromium magnet. Tobise et al discloses an apparatus for reading data comprising at least one permanent magnet stabilizing element made of cobalt-platinum-chromium magnet (column 5, line 26). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the apparatus of Coffey et al with at least one permanent magnet stabilizing element made of cobalt-platinum-chromium magnet as taught by Tobise et al.

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the apparatus of Coffey et al with at least one permanent magnet stabilizing element made of cobalt-platinum-chromium magnet as taught by Tobise et al as doing this would allow

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to have a proper residual flux density without having a very thin layer and at the same time limiting the Barkhausen noise.

9. Claims 1, 5-6, 17, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balamane et al (U.S. Pat. 6,662,432) in view of Coffey et al.

Regarding claims 1, 5-6, and as far as it is understood claims 17, 21-22, Balmane et al discloses an apparatus for reading data, comprising:  
a reduced sensitivity spin valve sensor, wherein the reduced sensitivity spin valve sensor senses an applied magnetic field from the magnetic media when the magnetic media passes by the reduced sensitivity sensor, and wherein the reduced sensitivity spin valve sensor has a sensitivity less than magnetic disk head sensors, and wherein the reduced sensitivity spin valve sensor has a sensitivity that is reduced from a sensitivity of the magnetic disk head spin valve sensor by increasing an effective anisotropy field of a free layer in the reduced sensitivity spin valve sensor, and wherein the effective anisotropy field of the reduced sensitivity spin valve sensor is increased by increasing a stiffness of a sensing region of the free layer (column 2, lines 41-47).

Balmane et al further discloses that the effective anisotropy field of the free layer is increased by increasing the stiffness of the entire length of the free layer (a Co or Co based layer would increase the stiffness of the free layer, column 2, lines 44-46).

Balmane et al also discloses that the stiffness of the free layer is increased by using at least one permanent magnet stabilizing element 140 to the sensing region of the free layer (see figure 11).

Balmane et al does not specifically disclose that the magnetic media is a tape. Coffey et al discloses an apparatus for reading data from a magnetic tape. It would have been obvious to

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one of ordinary skill in the art at the time the invention was made to provide the spin valve sensor of Balmane et al with the apparatus for reading data from a magnetic tape as taught by Coffey et al.

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the spin valve sensor of Balmane et al with the apparatus for reading data from a magnetic tape as taught by Coffey et al as doing this would ensure reading a magnetic tape with a free layer in a single domain state, therefore avoiding the Barkhausen noise.

#### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1, 5-9, 17 and 21-25 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period



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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel A. Castro whose telephone number is 571-272-7584. The examiner can normally be reached on Monday through Thursday, 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**ANGEL CASTRO**  
**PRIMARY EXAMINER**

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